

**WHAT IS CLAIMED IS:**

1. A security gate assembly comprising:  
an elongate gate arm movable along a defined pathway of travel;  
5 a DC motor having an output disposed to provide a torque upon the receipt of a first series of output pulses;  
a linkage mechanism attached to one end of said gate arm and to the DC motor output and disposed to cause rotation of the gate arm in accordance with the DC motor output; and  
10 an adaptive control circuit disposed to monitor a plurality of operating conditions and to provide said first output pulses to said DC motor in response to the plurality of operating conditions.
2. The invention as in claim 1 wherein the adaptive control circuit is further disposed to provide second output pulses to cause counter-rotation of the  
15 gate arm.
3. The invention as in claim 1 wherein the adaptive control circuit is operable to develop a signal indicative of the position of the gate arm and to vary the first output signals in accordance with the developed signal.
4. The invention as in claim 3 wherein the position signal is developed  
20 by counting output pulses of the DC gear motor.
5. The invention as in claim 3 wherein the adaptive control circuit is further operable to receive data to provide the first output signals based on the weight of the gate arm.

6. The invention as in claim 1 wherein the adaptive control circuit senses the relative position and speed of the gate arm as it traverses its defined pathway of travel.

7. The invention as in claim 6 wherein the adaptive control circuit  
5 provides an output signal to the DC motor to cause of the gate arm to cease movement along the pathway of travel when a change in angular velocity is sensed.

8. The invention as in claim 1 wherein the linkage mechanism comprises a four-bar linkage member for coupling said DC motor output with said  
10 gate arm.

9. The invention as in claim 8 wherein said linkage mechanism further includes a banana-shaped link piece attached to both said DC motor output and said gate arm subassembly.

10. The invention as in claim 9 wherein the adaptive control circuit  
15 comprises a microprocessor and an object-oriented control program executing on said microprocessor.

11. The invention as in claim 10 wherein the object-oriented operating system includes a motor controller object.

12. An object-oriented control system implementing a control program  
20 in a security gate including a gate arm and a motor operably connected thereto and adapted to be actuated and deactivated upon the receipt of a series of control pulses comprising:

a motor controller object implementing methods and data associated with a security gate;

a device handler object implementing methods data associated with input and output functions; and

a messaging object for permitting messages to be passed between the motor controller object and the device handler object.

- 5           13.    The invention as in claim 12 wherein the motor controller object accesses one of a plurality of output voltage profiles for actuating the gate arm.

14.    A linkage assembly for coupling a gate arm with an actuating motor comprising:

- a reduction gear mechanism coupled with the actuating motor output;  
10        a first link piece connected with the reduction gear mechanism;  
          a main crank shaft operably connected with the gate arm having an axis of rotation spaced from the output axis of rotation, the main crank shaft moving between a first position and a second position; and  
          a second link piece operably connecting the first link piece with the crank  
15        shaft, the linkage assembly rotating the main crank at a variable angular speed between the first position and the second position.

15.    The invention as in claim 15 wherein the main crank passes through a centerline of the gate arm to permit connection in either a right-hand orientation or a left-hand orientation.